What is claimed is:

1.   A method for reducing contention and loss probabilities for PDUs arriving at downstream nodes comprising the steps of:

delaying the sending a PDU generated at an ingress node beyond said PDU's pre-determined minimum offset time, or zero delay, for a maximum delay time,

optionally, delaying a PDU in transit at an intermediate node, even though there is no contention at said intermediate node without using said delay, or when a smaller delay at said intermediate node is sufficient to avoid contention at said intermediate node.

2.   A method of claim 1 wherein PDU's assembled or entering the network at an ingress node are scheduled independently of the method of delay used at intermediate nodes comprising the steps of:

determining a maximum delay requirement,

performing a search among channels for an interval on a channel that satisfies the maximum delay requirement,

scheduling the PDU into the interval identified on the identified channel and updating the interval information for said identified channel,

dropping the PDU if no channel is identified as having an interval satisfying the maximum delay requirement.

28

3.   A method of claim 1 wherein PDU's assembled or entering the network at an ingress node are scheduled comprising the steps of:

determining a maximum delay requirement,

performing a sequential search in a fixed order among channels for an interval on a channel that satisfies the maximum delay requirement,

scheduling the PDU into the first search channel identified as having a satisfying interval, and updating the interval information for said identified channel,

dropping the PDU if no channel is identified as having an interval satisfying the maximum delay requirement.

4.   A method of claim 1 wherein the scheduling of PDU's assembled or entering the network at an ingress node comprises the steps of:

determining a maximum delay requirement,

performing a search among a few selected channels called the home channels corresponding to the egress node using any order (sequential, random) for an interval on a home channel that satisfies the maximum delay requirement,

scheduling the PDU into the first such home channel identified as having a satisfying interval, and updating the interval information for said identified channel,

performing a sequential search in a fixed order among the rest, non home channels for an interval on a non home channel that satisfies the maximum delay requirement,

scheduling the PDU into the first non home channel identified as having a satisfying interval, and updating the interval information for said identified channel,

dropping the PDU if no channel is identified as having an interval satisfying the maximum delay requirement.

5.   A method of claim 1 wherein the scheduling of PDU's assembled or entering the network at an ingress node comprises the steps of:

determining a maximum delay requirement,

performing a search among a few selected channels called the home channels corresponding to the egress node using any order (sequential, random) for an interval on a home channel that satisfies the maximum delay requirement,

scheduling the PDU into the first such home channel identified as having a satisfying interval, and updating the interval information for said identified channel,

performing a search among the non home channels of the said egress node for an interval on a channel that satisfies the maximum delay requirement, with the highest preference given to the home channels corresponding to the immediate downstream nodes called the children nodes of the said egress node, with respect to a spanning tree rooted at the said ingress node and specifying the paths to each and every other egress node, the second highest preference given to the home channels corresponding to the immediate upstream nodes called the parent nodes of the said egress node, with respect to the said spanning tree rooted at the said ingress node and specifying the paths to each and every other egress node, and the third highest

preference given to the home channels corresponding to the rest of the nodes using any order (sequential, random), and the lowest preference to all other channels,

scheduling the PDU into the first channel identified as having a satisfying interval, and updating the interval information for said identified channel,

dropping the PDU if no channel is identified as having an interval satisfying the maximum delay requirement.

6.   A method of claim 1 wherein PDU's assembled or entering the network at an ingress node are scheduled comprising the steps of:

determining a maximum delay requirement

constructing a binary search tree where every leaf node records its associated channel's horizon starting time and each non-leaf node records the least horizon starting value of all of its child nodes

searching this binary tree until a first channel is identified containing an interval that satisfies the maximum delay requirement,

scheduling the PDU onto the interval identified on the identified channel and updating the binary search tree data structure,

dropping the PDU if no channel is identified as satisfying the maximum delay requirement.

7. A method of claim 1 wherein the scheduling of PDUs assembled or entering the network at a node performing as an ingress node, or the scheduling of PDUs transiting this same node performing as an intermediate node, comprising the steps of:

determining a maximum *generated* PDU and *transit* PDU delay requirements

constructing a balanced binary search tree consisting of a *generated tree* for locally generated PDUs where every leaf node records its associated channel's horizon starting time and each non-leaf node records the least horizon starting value of all of its child nodes, and which is then augmented wherein a pointer field is added to each *generated tree* leaf and these pointers are then organized into a *transit tree* with a root pointer point to the root of this *transit tree*,

in the case of generated PDUs, then searching this balanced tree from the root of the *generated tree* until an interval and channel satisfying the generated maximum delay requirement is identified,

in the case of transit PDUs, then searching this balanced tree from the root of the *transit tree* until an interval and channel satisfying the transit maximum delay requirement is identified,

scheduling the PDU onto the interval identified on the identified channel and updating the balanced binary search tree data structure,

dropping the PDU if no channel is identified as satisfying the PDU's associated maximum delay requirement

8. A method of claim 1 wherein the scheduling of PDUs assembled or entering the network at a node performing as an ingress node, or the scheduling of PDUs transiting this same node performing as an intermediate node, comprising the steps of:

determining a maximum generated PDU and transit PDU delay requirements

constructing a search data structure for generated and transit PDUs based upon the methods of U.S. Patent Application 10/366,890 without FDLs

searching this data structure per the methods of 10/366,890 until an interval and channel satisfying the PDUs associated maximum delay requirement is identified,

scheduling the PDU onto the interval identified on the identified channel and updating the data structure,

dropping the PDU if no channel is identified as satisfying the PDU's associated maximum delay requirement

9. A method of claim 1 wherein the scheduling of PDUs assembled or entering the network at a node performing as an ingress node, or the scheduling of PDUs transiting this same node performing as an intermediate node, comprising the steps of:

determining a maximum generated PDU and transit PDU delay requirements

constructing a search data structure for generated PDUs based upon the methods of U.S. Patent Application 10/366,890 without FDLs, and for transit PDUs, based upon the methods of U.S. Patent Application 10/366,890 with FDLs,

33

searching this data structure per the methods of 10/366,890 until an interval and channel satisfying the PDUs associated maximum delay requirement is identified,

scheduling the PDU onto the interval identified on the identified channel and updating the data structure,

dropping the PDU if no channel is identified as satisfying the PDU's associated maximum delay requirement

10.   (BORA-V-FS) A method of claim 1 wherein the scheduling of PDU's assembled or entering the network at an ingress node comprising the steps of:

determining a maximum delay requirement

constructing a binary search tree where every leaf node records its associated channel's horizon starting time and each non-leaf node records the least horizon starting value of all of its child nodes,

searching this binary tree until a first channel is identified that satisfies the maximum delay requirement,

scheduling the PDU onto an the identified interval on the identified channel

dropping the PDU is no channel is identified as satisfying the maximum delay requirement